



NC3120 Fast Ethernet Server Adapter

User Guide

Fourth Edition (January 2003)
Part Number 234554-00D
Compaq Computer Corporation

Notice

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About This Guide

This user guide can be used for reference when installing the Compaq NC3120 Fast Ethernet Server Adapter.



WARNING: To reduce the risk of personal injury from electrical shock and hazardous energy levels, only authorized service technicians should attempt to repair this equipment. Improper repairs could create conditions that are hazardous.

IMPORTANT: The installation of options and servicing of this product shall be performed by individuals who are knowledgeable of the procedures, precautions, and hazards associated with equipment containing hazardous energy circuits.

Symbols in Text

These symbols may be found in the text of this guide. They have the following meanings.



WARNING: Text set off in this manner indicates that failure to follow directions in the warning could result in bodily harm or loss of life.



CAUTION: Text set off in this manner indicates that failure to follow directions could result in damage to equipment or loss of information.

IMPORTANT: Text set off in this manner presents clarifying information or specific instructions.

NOTE: Text set off in this manner presents commentary, sidelights, or interesting points of information.

Compaq Technician Notes



WARNING: Only authorized technicians trained by Compaq should attempt to repair this equipment. All troubleshooting and repair procedures are detailed to allow only subassembly/module level repair. Because of the complexity of the individual boards and subassemblies, no one should attempt to make repairs at the component level or to make modifications to any printed wiring board. Improper repairs can create a safety hazard. Any indications of component replacement or printed wiring board modifications may void any warranty.



WARNING: To reduce the risk of personal injury from electrical shock and hazardous energy levels, do not exceed the level of repair specified in these procedures. Because of the complexity of the individual boards and subassemblies, do not attempt to make repairs at the component level or to make modifications to any printed wiring board. Improper repairs could create conditions that are hazardous.



WARNING: To reduce the risk of electric shock or damage to the equipment:

- If the system has multiple power supplies, disconnect power from the system by unplugging all power cords from the power supplies.
 - Do not disable the power cord grounding plug. The grounding plug is an important safety feature.
 - Plug the power cord into a grounded (earthed) electrical outlet that is easily accessible at all times.
-



CAUTION: To properly ventilate your system, you must provide at least 12 inches (30.5 cm) of clearance at the front and back of the computer.



CAUTION: The computer is designed to be electrically grounded. To ensure proper operation, plug the AC power cord into a properly grounded AC outlet only.

Where to Go for Additional Help

For additional information, refer to the README files in the \DIAGS directory on the Compaq Software and Documentation CD. To view these files, insert the Software and Documentation CD, switch to the \DIAGS directory on that drive, and enter:

```
SETUP /README
```

Compaq Customer Support

You can reach Compaq automated support services 24 hours a day, every day at no charge. The services provide the most up-to-date information about Compaq products. You can access installation instructions, troubleshooting information, and general product information from the Compaq website.

For comprehensive online support, refer to:

<http://www.compaq.com>

For international information, refer to:

http://www.compaq.com/corporate/overview/world_offices.html

Compaq Website

For Compaq Web-based support services, visit:

<http://www.compaq.com/support>

Navigate to a specific product and then look for support information from this list of support resources.

For a complete list of available SoftPaq files, navigate to:

<http://www.compaq.com/support/files/allsp.html>

Send email to:

support@compaq.com

PaqFax Number

The Compaq fax-on-demand retrieval system provides product-specific information. To use the fax system, you must be in North America and you must have a fax machine or fax modem to receive the automated fax transmittals. Call 1-800-345-1518, option 1, and request a product catalog. After you receive the catalog, you can order the documents through the Compaq fax-on-demand retrieval system.

Calling the Compaq Support Line

When you call the Compaq Support line, you must be at your server with your software running and the product documentation at hand. The Compaq technician may ask for the following information:

- Your address and telephone number
- The name and model number of the Compaq product you are calling about
- The serial number of your Compaq product
- The names and version numbers of the software you are using to operate the Compaq product
- The name and version number of the operating system you are using
- The system type (manufacturer and model number)
- The expansion boards or add-in cards in your server
- The amount of memory in your server

North America

The Compaq Customer Support department for North America can be reached at 1-800-652-6672 (1-800-OKCOMPAQ). For continuous quality improvement, calls may be monitored or recorded.

Europe, the Middle East, and Africa

In Europe, the Middle East, and Africa, contact your local Compaq authorized service provider. Details of your local Compaq authorized service provider can be obtained from your Compaq authorized reseller, dealer, or from the Compaq website at:

[http:// www.compaq.com](http://www.compaq.com)

Worldwide Access

Compaq has technical support centers worldwide. Many of the centers are staffed by technicians who speak the local languages. For a list of Compaq support centers, go to:

<http://www.compaq.com>

From the Compaq Worldwide home page, select your country and click Go to find the nearest Compaq office.

Chapter 1

Introduction

Overview

For the latest functionality, features, and operating system support for the NC3120 Server Adapter, see the networking page at

compaq.com

Hardware Overview

The NC3120 Server Adapter has three diagnostic LED indicators that show if there is a problem with the connector, cable, or hub.

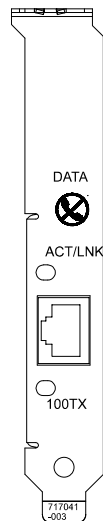


Figure 1-1. Compaq NC3120 Server Adapter

LED Indicators

The following table describes the NC3120 Server Adapter LED indicators.

Table 1-1
LED Operations for the NC3120 Server Adapter

LED	Display	Description
LNK	On	Link to the adapter is established. The adapter is receiving power and the cable connection is secure.
	Off	There is no link to the adapter. The adapter is not receiving power or the cable connection is faulty.
ACT	On or flashing	The adapter is sending or receiving network data. The frequency of the flashes varies with the amount of network traffic. The adapter is receiving power and the cable connection is secure.
	Off	No network data is being sent or received. The adapter is not receiving power or the cable connection is faulty.
100 Mb/s	On	The adapter is sending or receiving data at 100 Mb/s.
	Off	The adapter is sending or receiving data at 10 Mb/s.

UTP Category 3 or Category 5 Cable

The NC3120 Server Adapter can use existing Category 3 (or better) cable to deliver 10 Mb/s operation, and Category 5 (or better) cable to deliver 100 Mb/s operation.

For information about connecting cables, see “Connecting the Network Cable” in Chapter 2.

IMPORTANT: If you are using the NC3120 Server Adapter in a residential environment, you must use a Category 5 (or better) cable. For more information on 100Base-TX wiring requirements and limitations, see the text files on the Compaq Software and Documentation CD.

Chapter 2

Installing the Adapter

This chapter describes installation precautions and explains how to install the adapter. It also describes how to connect the network cable.



WARNING: To avoid the risk of personal injury or damage to the equipment, consult the safety information and user documentation provided with your equipment before attempting the installation of the adapter.

Many computers are capable of producing energy levels that are considered hazardous. Users should not remove enclosures, nor should they bypass the interlocks provided for removal of these hazardous conditions.

Installation of this adapter should be performed by individuals who are both qualified in the servicing of computer equipment and trained in the hazards associated with products capable of producing hazardous energy levels.

NOTE: Before removing the cover of your server, refer to the Compaq documentation for the proper methods for installing a PCI card and avoiding electric shock hazards.

Electrostatic Discharge Precautions

A discharge of static electricity from a finger or other conductor can damage components on the adapter. This can make the adapter inoperable. In addition to the following information, see Appendix B for more precautions.

To prevent electrostatic damage, observe the following precautions:

- Always properly ground yourself when touching a static-sensitive component or assembly.
- Avoid hand contact by transporting and storing parts in static-safe containers.
- Keep electrostatic-sensitive parts in their containers until they arrive at static-free locations.
- Place parts on a grounded surface before removing them from their containers.
- Avoid touching pins, leads or circuitry.

Installing the Adapter in a Server

Refer to the documentation provided with your server for the specific steps necessary to safely install a PCI card in your server.

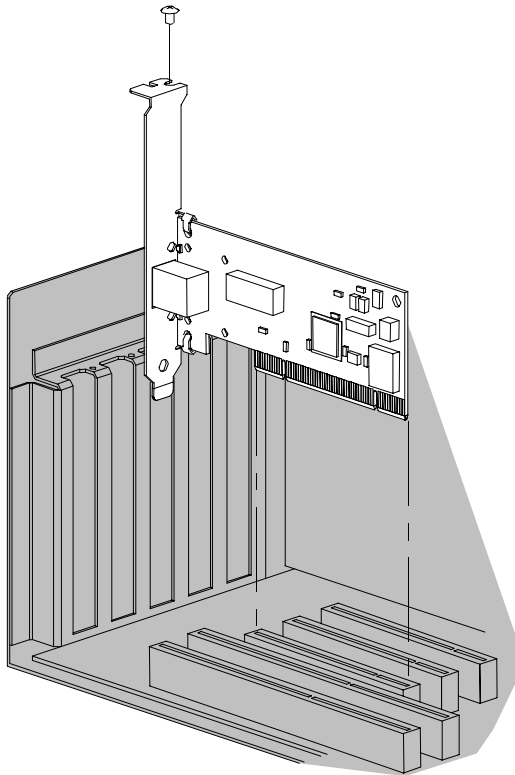


Figure 2-1. Installing the adapter in a server

1. If the server is not PCI Hot Plug compliant, power down the server and unplug the power cord.
2. Remove the server cover and the cover bracket from a PCI slot.



WARNING: To reduce the risk of personal injury from hot surfaces, allow the internal system components to cool before touching them.



CAUTION: If the device is not PCI Hot Plug compliant, power down the device and unplug the power cord from the power outlet before removing the device cover. Failure to do so may damage the adapter or computer.

3. Firmly seat the adapter in a PCI slot and secure the adapter bracket.
4. Replace the server cover and plug in the power cord.

Connecting the Network Cable

Network connections for the NC3120 Server Adapter can employ existing UTP Category 5 (or better) cable for 100 Mb/s transmissions, and UTP Category 3 (or better) cable for 10 Mb/s transmissions.

Regulatory Compliance Notices

Federal Communications Commission Notice

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio or television technician for help.

Modifications

The FCC requires the user to be notified that any changes or modifications made to this device that are not expressly approved by Compaq Computer Corporation may void the user's authority to operate the equipment.

Declaring of Conformity for Products Marked with the FCC Logo – United States Only

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

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For questions regarding your product, contact:

Compaq Computer Corporation
P. O. Box 692000, Mail Stop 530113
Houston, Texas 77269-2000

or call 1-800-652-6672 (1-800-OK COMPAQ). (For continuous quality improvement, calls may be recorded or monitored.)

For questions regarding this FCC declaration, contact:

Compaq Computer Corporation
P. O. Box 692000, Mail Stop 510101
Houston, Texas 77269-2000

or call (281) 514-3333.

To identify this product, refer to the Part, Series, or Model number found on the product.

Canadian Notice

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Avis Canadien

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

European Union Notice

Products with the C0E Marking comply with both the EMC Directive (89/336/EEC) and the Low Voltage Directive (73/23/EEC) issued by the Commission of the European Community.

Compliance with these directives implies conformity to the following European Norms (in brackets are the equivalent international standards):

- EN55022 (CISPR 22) – Electromagnetic Interference
- EN55024 (IEC61000-4-2,3,4,5,6,8,11) – Electromagnetic Immunity
- EN61000-3-2 (IEC61000-3-2) – Power Line Harmonics
- EN61000-3-3 (IEC61000-3-3) – Power Line Flicker
- EN60950 (IEC950) – Product Safety

China Taiwan Notice

警告使用者：

這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

Japanese Notice

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取扱説明書に従って正しい取り扱いをして下さい。

Electrostatic Discharge

To prevent damage to the system, be aware of the precautions you need to follow when setting up the system or handling parts. A discharge of static electricity from a finger or other conductor may damage system boards or other static-sensitive devices. This type of damage may reduce the life expectancy of the device.

To prevent electrostatic damage, observe the following precautions:

- Avoid hand contact by transporting and storing products in static-safe containers.
- Keep electrostatic-sensitive parts in their containers until they arrive at static-free workstations.
- Place parts on a grounded surface before removing them from their containers.
- Avoid touching pins, leads, or circuitry.
- Always be properly grounded when touching a static-sensitive component or assembly.

Grounding Methods

There are several methods for grounding. Use one or more of the following methods when handling or installing electrostatic-sensitive parts:

- Use a wrist strap connected by a ground cord to a grounded workstation or computer chassis. Wrist straps are flexible straps with a minimum of 1 megohm ± 10 percent resistance in the ground cords. To provide proper ground, wear the strap snug against the skin.
- Use heel straps, toe straps, or boot straps at standing workstations. Wear the straps on both feet when standing on conductive floors or dissipating floor mats.
- Use conductive field service tools.
- Use a portable field service kit with a folding static-dissipating work mat.

If you do not have any of the suggested equipment for proper grounding, have a Compaq authorized reseller install the part.

NOTE: For more information on static electricity or assistance with product installation, contact your Compaq authorized reseller.

Specifications

NC3120 Fast Ethernet Server Adapter Specifications

Table C-1
NC3120 Fast Ethernet Server Adapter Specifications

Specification	Description
Network Controller Chipset	Intel 82558 MAC
Data Transfer Method	32-bit/33MHz PCI (Bus Master DMA)
Standards Supported (Varies by OS)	IEEE 802.3u, 802.3ad (static configuration mode only), 802.3x, 802.1p, 802.1Q
Dimensions	5.4 x 4.8 inches (L x W), 13.7 cm x 12.2 cm (including bracket)
Connector and Distances	One RJ-45, 100 meters (328 feet)
Interrupts Supported	Automatically configured
Temperature Range	Operating: 10° C to 55° C / 50° F to 131° F Storage: -20° C to 65° C / -4° F to 149° F
Relative Humidity	Operating: 10% to 90% Storage: 5% to 95%
Agency Approvals	<ul style="list-style-type: none"> ■ FCC Class B ■ CISPR 22 Class B ■ EN60950 ■ EN 55022 Class B ■ EN55024 ■ UL ■ Canada UL ■ ICES-003 Class B
Power Requirement	470 mA @ 5V DC max
Data Transmission Rate	10/100 (Full- and Half-duplex)

UTP Cable Specifications

To connect to the network, the NC3120 adapter uses the following cable.

10BASE-T

- Category 3 (or better) UTP twisted-pair
- 22-26 AWG, 100Ω at 1MHz
- EIA/TIA 568a or EIA/TIA 568b

100BASE-T

- Category 5 (or better) UTP twisted pair
- 22-26 AWG, 100Ω at 1MHz
- EIA/TIA 568a or EIA/TIA 568b

RJ-45 Pinouts and Crossover Function

The Ethernet standard also specifies that each segment implement a crossover function to connect the transmitter of one device to the receiver of a device at the other end, and vice-versa. The crossover function may be implemented internally at the hub or switch, or externally through the twisted-pair media.

10/100 Straight-Through Pinouts

If the crossover function is implemented internally, the port is labeled MDI-X (Medium Dependent Interface–Crossover). When an MDI-X port is connected to an MDI port, the twisted-pair media should be wired straight-through using the physical pinouts indicated in Table C-2.

Table C-2
10/100 Pinouts Using Internal, Straight-Through Crossover

Pin	Function	Color Match	Function	Pin
1	TD+	White/Orange	TD+	1
2	TD-	Orange/White	TD-	2
3	RD+	White/Green	RD+	3
4		Blue/White		4
5		White/Blue		5
6	RD-	Green/White	RD-	6
7		White/Brown		7
8		Brown/White		8

Figure C-1 shows the straight-through 10/100 connector wiring to be used when the crossover function is implemented on the hub or switch.

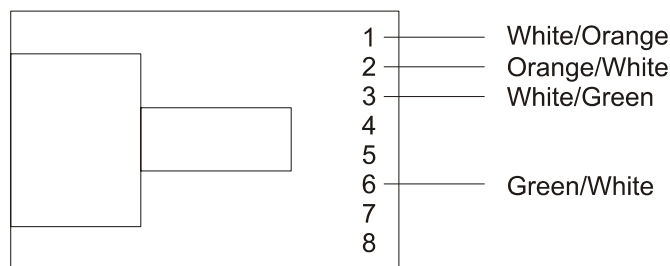


Figure C-1. 10/100 straight-through wiring for RJ-45 connector

10/100 Crossover Pinouts

When the crossover function is not provided within the hub or switch, you must implement the crossover through the twisted-pair media using the physical pinouts indicated in Table C-3.

Table C-3
10/100 Pinouts Using External Crossover

Pin	Function	Color Match	Function	Pin
1	TD+	White/Orange	RD+	3
2	TD-	Orange/White	RD-	6
3	RD+	White/Green	TD+	1
4		Blue/White		
5		White/Blue		
6	RD-	Green/White	TD-	2
7		White/Brown		
8		Brown/White		

Figure C-2 shows the correct 10/100 wiring to use when the crossover function is implemented externally in the twisted-pair cabling.

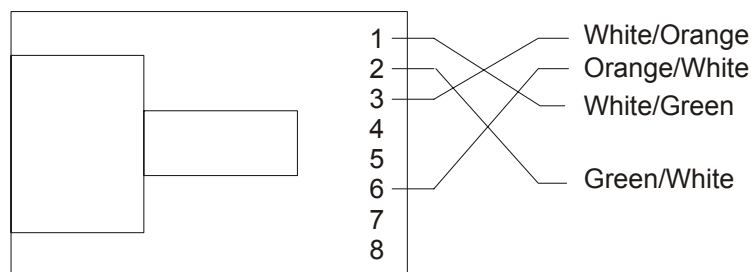


Figure C-2. 10/100 external crossover for RJ-45 connector